UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,673	03/23/2005	Tatsuo Hoshino	K21409USWO C038435/018565	2412

7590 06/16/2006

Stephen M Haracz
Bryan Cave
1290 Avenue of the Americas
New York, NY 10104

EXAMINER	
RAGHU, GANAPATHIRAM	
ART UNIT	**PAPER NUMBER**
1652	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/528,673	HOSHINO ET AL.	
	Examiner	Art Unit	
	Ganapathirama Raghu	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2005*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-18* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *SEQ. ALIGNMENT*.

DETAILED ACTION

Claims 1-18 are pending in this application.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I. Claims 1, 2, 5-8, 13, 16, drawn to a process for the production of L-ascorbic acid comprising: contacting an enzyme with a substrate selected from the group consisting of L-gulose, L-galactose, L-idose and L-talose or substrate is selected from the group consisting of L-gulono-1,4-lactone, L-gulonic acid, L-galactono-1,4-lactone, L-galctonic acid, L-idono-1,4-lactone, L-idonic acid, L-talono-1,4-lactone and L-talonic acid, wherein said enzyme has the amino acid sequence of SEQ ID NO: 2 .

Group II. Claims 3, 9, 11, 14, 17, drawn to a process for the production of L-gulono-1,4-lactone or L-gulonic acid from L-gulose, wherein said enzyme has the amino acid sequence of SEQ ID NO: 2, Enzyme B of *G. oxydans* DSM 4025.

Group III. Claims 4, 10, 12, 15, 18, drawn to a process for the production of L-galactono-1,4-lactone or L-galctonic acid from L-galactose, wherein said enzyme has the amino acid sequence of SEQ ID NO: 2, Enzyme B of *G. oxydans* DSM 4025.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features linking the inventions of Group I-III appears to be that they all relate to a process of production of L-ascorbic acid or L-gulono-1,4-lactone or L-gulonic acid by contacting with an enzyme, wherein said enzyme has the amino acid sequence of SEQ ID NO: 2 or a process of production of L-ascorbic acid or L-gulono-1,4-lactone or L-gulonic acid by contacting with an enzyme, wherein said enzyme is Enzyme B of *G. oxydans* DSM 4025.

However, Asakura et al., (1998, see sequence alignment provided) disclose the amino acid sequence of an enzyme from *G. oxydans* with alcohol and/or aldehyde dehydrogenase activity and L-gulonic acid is a known substrate for this enzyme, said enzyme has 100% sequence homology to SEQ ID NO: 2 of the instant application and therefore said enzyme can be used in the process for the production of L-gulonic acid or L-ascorbic acid.

Therefore the special technical feature linking the inventions of Group I-III does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

Accordingly, Groups I-III are not so linked by the same or a corresponding special technical feature as to form a single inventive concept.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached on 8 am - 4.30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ganapathirama Raghu, Ph.D.
Patent Examiner
Art Unit 1652

June 01, 2006.

REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP 1600

GenCore version 5.1.8

OM protein - protein search, using sw model

Run on: May 27, 2006, 12:51:34 ; Search time 197 Seconds
(without alignments)
1343.799 Million cell updates/sec

Title: US-10-528-673-2
Perfect score: 3069
Sequence: 1 MNPTTLLRTSAAVLLLTAPA.....AEAIDSTSVGNAIYVFALPQ 579

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2589679 seqs, 457216429 residues

Total number of hits satisfying chosen parameters: 2589679

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_8:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*
9: geneseqp2005s:*
10: geneseqp2006s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	3069	100.0	579	2	AAW37876	Aaw37876 Alcohol a
2	3069	100.0	579	8	ADN10956	Adn10956 Gluconoba
3	2765	90.1	580	8	ADI34121	Adi34121 Ketogulon
4	2611	85.1	579	2	AAW37873	Aaw37873 Alcohol a
5	2590.5	84.4	612	8	ADW39238	Adw39238 P sacchar
6	2569.5	83.7	578	8	ADI34118	Adi34118 Ketogulon
7	2559.5	83.4	579	8	ADI34120	Adi34120 Ketogulon
8	2526.5	82.3	579	2	AAW37874	Aaw37874 Alcohol a
9	2497	81.4	578	2	AAW37875	Aaw37875 Alcohol a
10	1673	54.5	608	7	ADE94131	Ade94131 Alcohol/a
11	755.5	24.6	717	8	ADS21807	Ads21807 Bacterial
12	624.5	20.3	567	8	ADN24711	Adn24711 Bacterial
13	622	20.3	577	8	ADS43309	Ads43309 Bacterial
14	620	20.2	692	8	ADS42094	Ads42094 Bacterial
15	619	20.2	559	8	ADN21954	Adn21954 Bacterial
16	585	19.1	754	3	AAB35987	Aab35987 Sorbitol
17	578	18.8	623	8	ADN25393	Adn25393 Bacterial
18	554.5	18.1	601	8	ADN22277	Adn22277 Bacterial
19	552	18.0	685	7	ABO83287	Abo83287 Pseudomon
20	551.5	18.0	738	2	AAR20192	Aar20192 ADH compl
21	550.5	17.9	738	2	AAR13993	Aar13993 A.altocet
22	547	17.8	592	8	ADN25035	Adn25035 Bacterial
23	529.5	17.3	532	8	ADN25034	Adn25034 Bacterial
24	524.5	17.1	706	8	ADS21805	Ads21805 Bacterial
25	513.5	16.7	683	8	ADN22276	Adn22276 Bacterial
26	490.5	16.0	742	2	AAR05235	Aar05235 Amino aci
27	482.5	15.7	592	8	ADS26936	Ads26936 Bacterial
28	482.5	15.7	592	8	ADS27298	Ads27298 Bacterial
29	482.5	15.7	593	8	ADS26560	Ads26560 Bacterial
30	416	13.6	792	8	ADN24984	Adn24984 Bacterial
31	416	13.6	792	8	ADN22225	Adn22225 Bacterial
32	412	13.4	803	7	ADD24941	Add24941 Escherich
33	412	13.4	823	8	ADU40628	Adu40628 Membrane-
34	411	13.4	743	6	ABR42659	Abr42659 Gluconic
35	411	13.4	743	9	AED03436	Aed03436 5-keto-D-
36	408	13.3	804	8	ADN22168	Adn22168 Bacterial
37	408	13.3	804	8	ADN24927	Adn24927 Bacterial
38	407	13.3	798	8	ADS26380	Ads26380 Bacterial
39	407	13.3	798	8	ADS27130	Ads27130 Bacterial
40	407	13.3	798	8	ADS26748	Ads26748 Bacterial
41	399	13.0	796	8	ADN18050	Adn18050 Bacterial
42	399	13.0	796	8	ADT87278	Adt87278 E.coli St
43	396.5	12.9	788	9	ADY26616	Ady26616 Amino aci
44	396.5	12.9	788	9	ADY26591	Ady26591 Amino aci
45	396.5	12.9	788	9	ADX44826	Adx44826 G. oxydan

ALIGNMENTS

RESULT 1
AAW37876
ID AAW37876 standard; protein; 579 AA.
XX
AC AAW37876;
XX
DT 10-AUG-1998 (first entry)
XX
DE Alcohol and/or aldehyde dehydrogenase B amino acid sequence.
XX
KW Alcohol/aldehyde dehydrogenase B enzyme; recombinant organism; aldehyde;
KW ketone; carboxylic acid; L-sorbose; D-sorbitol; 2-keto-L-gulonic acid;
KW L-ascorbic; inhibition.
XX
OS Gluconobacter oxydans.
XX
FH Key Location/Qualifiers
FT Peptide 1. .23
FT /note= "signal peptide"
FT Protein 24. .579
FT /note= "mature protein"
XX
PN EP832974-A2.
XX
PD 01-APR-1998.
XX
PF 11-SEP-1997; 97EP-00115801.
XX
PR 19-SEP-1996; 96EP-00115001.
XX
PA (HOFF) HOFFMANN LA ROCHE & CO AG F.
XX
PI Asakura A, Hoshino T, Ojima S, Shinjoh M, Tomiyama N;
XX
DR WPI; 1998-195228/18.
DR N-PSDB; AAV29054.
XX
PT Recombinant Gluconobacter oxydans alcohol and/or aldehyde dehydrogenase
PT enzyme(s) - useful for converting substrate(s), e.g. L-sorbose or D-
PT sorbitol to 2-keto-L-gulonic acid.
XX
PS Claim 1; Page 44-46; 59pp; English.
XX
CC This is the amino acid sequence for the Gluconobacter oxydans alcohol
CC and/or aldehyde dehydrogenase B enzyme. The enzymes or recombinant
CC organisms can be used to convert suitable substrates to aldehydes,

```
CC   ketones or carboxylic acids, especially to convert L-sorbose or D-
CC   sorbitol to 2-keto-L-gulonic acid, which can be converted to L-ascorbic
CC   acid by standard procedures. The derivatives of AADH enzymes have desired
CC   substrate specificity, higher affinity to a substrate, lower affinity to
CC   an inhibitory compound, higher stability against temperature and/or pH
CC   and higher catalytic speed
XX
SQ   Sequence 579 AA;

  Query Match             100.0%;  Score 3069;  DB 2;  Length 579;
  Best Local Similarity   100.0%;  Pred. No. 5.5e-244;
  Matches  579;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MNPTTLLRTSAAVLLLTAPAAFAQVTPITDELLANPPAGEWINYGRNQENYRHSPLTQIT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MNPTTLLRTSAAVLLLTAPAAFAQVTPITDELLANPPAGEWINYGRNQENYRHSPLTQIT 60

Qy         61 ADNVGQLQLVWARGMEAGAVQVTPMIHDGVMYLANPGDVIQALDAQTGDLIWEHRRQLPA 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 ADNVGQLQLVWARGMEAGAVQVTPMIHDGVMYLANPGDVIQALDAQTGDLIWEHRRQLPA 120

Qy        121 VATLNAQGDRKRGVALYGTSLYFSSWDNHLIALDMETGQVVFDVERGSGEDGLTSNTTGP 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 VATLNAQGDRKRGVALYGTSLYFSSWDNHLIALDMETGQVVFDVERGSGEDGLTSNTTGP 180

Qy        181 IVANGVIVAGSTCQYSPYGCFISGHDSATGEELWRNHFIPQPGEEGDETWGNDFEARWMT 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 IVANGVIVAGSTCQYSPYGCFISGHDSATGEELWRNHFIPQPGEEGDETWGNDFEARWMT 240

Qy        241 GVWGQITYDPVTNLVFYGSTGVGPASETQRGTPGGTLYGTNTRFAVRPDTGEIVWRHQTL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 GVWGQITYDPVTNLVFYGSTGVGPASETQRGTPGGTLYGTNTRFAVRPDTGEIVWRHQTL 300

Qy        301 PRDNWDQECTFEMMVANVDVQPSAEMEGLRAINPNAATGERRVLTGAPCKTGTMWSFDAA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 PRDNWDQECTFEMMVANVDVQPSAEMEGLRAINPNAATGERRVLTGAPCKTGTMWSFDAA 360

Qy        361 SGEFLWARDTNYTNMIASIDETGLVTVNEDAVLKELDVEYDVCPTFLGGRDWSSAALNPD 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 SGEFLWARDTNYTNMIASIDETGLVTVNEDAVLKELDVEYDVCPTFLGGRDWSSAALNPD 420

Qy        421 TGIYFLPLNNACYDIMAVDQEFSALDVYNTSATAKLAPGFENMGRIDAIDISTGRTLWSA 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 TGIYFLPLNNACYDIMAVDQEFSALDVYNTSATAKLAPGFENMGRIDAIDISTGRTLWSA 480

Qy        481 ERPAANYSPVLSTAGGVVFNGGTDRYFRALSQETGETLWQARLATVATGQAISYELDGVQ 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 ERPAANYSPVLSTAGGVVFNGGTDRYFRALSQETGETLWQARLATVATGQAISYELDGVQ 540

Qy        541 YIAIGAGGLTYGTQLNAPLAEAIDSTSVGNAIYVFALPQ 579
              |||||||||||||||||||||||||||||||||||||||
Db        541 YIAIGAGGLTYGTQLNAPLAEAIDSTSVGNAIYVFALPQ 579


RESULT 2
ABN10956
ID   ADN10956 standard; protein; 579 AA.
XX
AC   ABN10956;
XX
DT   01-JUL-2004  (first entry)
XX
DE   Gluconobacter oxydans Enzyme B, used in ascorbic acid production.
XX
KW   Enzyme B; ascorbic acid; vitamin C; L-gulono-1,4-lactone; L-gulonic acid;
KW   L-galactono-1,4-lactone; L-galactonic acid.
XX
OS   Gluconobacter oxydans.
XX
PN   WO2004029267-A1.
XX
PD   08-APR-2004.
XX
PF   22-SEP-2003; 2003WO-EP010489.
XX
PR   27-SEP-2002; 2002EP-00021602.
XX
PA   (STAM ) DSM IP ASSETS BV.
XX
PI   Hoshino T,  Shinjoh M;
XX
DR   WPI; 2004-329889/30.
DR   N-PSDB; ADN10955.
XX
PT   Producing L-ascorbic acid using enzyme B of Gluconobacter oxydans, from
PT   substrates L-gulose, L-galactose, L-idose, and L-talose.
XX
PS   Claim 1; SEQ ID NO 2; 24pp; English.
XX
CC   The present sequence is the protein sequence of Enzyme B from
CC   Gluconobacter oxydans strain DSM 4025. Enzyme B has a molecular weight of
CC   about 60,000 Da by SDS-PAGE, substrate specificity for primary and
CC   secondary alcohols and aldehydes, is stable in the pH range 6-9 with
CC   optimal activity at about pH 8.0, and is inhibited by Cu2+, Zn2+, Mn2+,
CC   Fe2+ and Fe3+. The present invention provides the use of this enzyme in a
CC   process for producing L-ascorbic acid from L-gulose, L-galactose, L-idose
CC   or L-talose, or from L-gulono-1,4-lactone, L-gulonic acid, L-galactono-
CC   1,4-lactone, L-galactonic acid, L-idono-1,4-lactone, L-idonic acid, L-
CC   talono-1,4-lactone and L-talonic acid. Enzyme B is also used in a process
CC   for the production of L-gulono-1,4-lactone or L-gulonic acid from L-
CC   gulose, and L-galactono-1,4-lactone or L-galactonic acid from L-
CC   galactose. The processes involve contacting the enzyme with the
CC   respective substrate and isolating the product from the reaction mixture.
CC   The process is conducted for 1-20 hours at pH 1-9 (preferably pH 2-8) and
CC   13-45 (preferably 18-42) degrees C. Production of L-gulono-1,4-lactone/L-
CC   gulonic acid from L-gulose, vitamin C from L-gulono-1,4-lactone/L-gulonic
CC   acid, L-galactono-1,4-lactone/L-galactonic acid from l-galactose, and
CC   vitamin C from L-galactono-1,4-lactone/L-galactonic acid by recombinant
CC   Escherichia coli JM109 carrying the Enzyme B gene is described in
CC   examples from the invention.
XX
SQ   Sequence 579 AA;

  Query Match             100.0%;  Score 3069;  DB 8;  Length 579;
  Best Local Similarity   100.0%;  Pred. No. 5.5e-244;
  Matches  579;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MNPTTLLRTSAAVLLLTAPAAFAQVTPITDELLANPPAGEWINYGRNQENYRHSPLTQIT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MNPTTLLRTSAAVLLLTAPAAFAQVTPITDELLANPPAGEWINYGRNQENYRHSPLTQIT 60

Qy         61 ADNVGQLQLVWARGMEAGAVQVTPMIHDGVMYLANPGDVIQALDAQTGDLIWEHRRQLPA 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 ADNVGQLQLVWARGMEAGAVQVTPMIHDGVMYLANPGDVIQALDAQTGDLIWEHRRQLPA 120

Qy        121 VATLNAQGDRKRGVALYGTSLYFSSWDNHLIALDMETGQVVFDVERGSGEDGLTSNTTGP 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 VATLNAQGDRKRGVALYGTSLYFSSWDNHLIALDMETGQVVFDVERGSGEDGLTSNTTGP 180

Qy        181 IVANGVIVAGSTCQYSPYGCFISGHDSATGEELWRNHFIPQPGEEGDETWGNDFEARWMT 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 IVANGVIVAGSTCQYSPYGCFISGHDSATGEELWRNHFIPQPGEEGDETWGNDFEARWMT 240

Qy        241 GVWGQITYDPVTNLVFYGSTGVGPASETQRGTPGGTLYGTNTRFAVRPDTGEIVWRHQTL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 GVWGQITYDPVTNLVFYGSTGVGPASETQRGTPGGTLYGTNTRFAVRPDTGEIVWRHQTL 300

Qy        301 PRDNWDQECTFEMMVANVDVQPSAEMEGLRAINPNAATGERRVLTGAPCKTGTMWSFDAA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 PRDNWDQECTFEMMVANVDVQPSAEMEGLRAINPNAATGERRVLTGAPCKTGTMWSFDAA 360

Qy        361 SGEFLWARDTNYTNMIASIDETGLVTVNEDAVLKELDVEYDVCPTFLGGRDWSSAALNPD 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 SGEFLWARDTNYTNMIASIDETGLVTVNEDAVLKELDVEYDVCPTFLGGRDWSSAALNPD 420

Qy        421 TGIYFLPLNNACYDIMAVDQEFSALDVYNTSATAKLAPGFENMGRIDAIDISTGRTLWSA 480
```